LFG'S ROLE IN UNDERSTANDING THE DIFFICULTIES OF COORDINATION ENCOUNTERED BY TURKISH LEARNERS OF ITALIAN AS A FOREIGN LANGUAGE

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Abstract

Lexical Functional Grammar (LFG), which was introduced by Joan Bresnan and Ronald Kaplan at the end of 1970's, is a reaction to transformational grammar. I intend to use LFG for analyzing the grammatical errors of Turkish adults, who are learning Italian as a foreign language. For finding out these errors, I distributed a grammaticality judgment test of 30 questions to 20 Turkish students, 10 of whom are learning Italian at the intermediate level, and 10 of whom at the elementary level. I made a statistical Chi-Square analysis for identifying in which parts of the Italian sentences and phrases coordinated with 'ma' (but), 'o' (or), 'e' (and), 'né… né' (neither…nor), and 'non solo... ma anche' (not only...but also). I aim to show that LFG proves the existence of cognitive and linguistic processes in the human mind.

1. INTRODUCTION

Lexical Functional Grammar, or briefly LFG was developed in the 1970s by Joan Bresnan and Ronald Kaplan; besides, it proposed a model of syntax which is not totally structurally-based, and which can be defined as a "*computationally precise and psychologically realistic model of human language*" (Sells, 1994, p. 135).

For this reason, in my paper, I am going to use LFG as a psychological, thus, brain-based model that provides us explanations for several language errors of not only the native speakers, but also of the foreign language learners. Previously, Abeillé (1993) analyzed the language structure of French, which is one of the Romance languages, according to LFG, but no one applied LFG to the field of foreign language education in Turkey. Before, writing this paper, I (Agiş, 2005) presented a paper on the coordination errors of the Turkish adult learners of French at Çukurova University in Adana during the Third International Graduate Students Conference on Linguistics and Language Teaching, held in 2005. However, this time I wanted to analyze the coordination of Turkish learners of Italian at the elementary and intermediate levels.

First, I am going to talk about the Italian coordination in terms of LFG, observing the coordination of words, word groups, and sentences; second, I am going to deal with the errors of the ten intermediate-level and ten elementary level students, learning Italian in Turkey, discussing that reasons of these errors should lie in the forms of Turkish coordination

structure. At the end, I am going to propose a method for not making any coordination errors.

2. ITALIAN COORDINATION IN LFG

In this part I aim to analyze the coordination of words and word groups, and also that of sentences.

2. 1. Coordination of Words and Word Groups

I am going to deal with the following conjunctions: *e* (and) and *non solo x, ma anche y* (not only x, but also y), and disjunctions, *ma* (but) and *né… né* (neither…nor), guessing which of these constituents can create grammatical problems for the Turkish students. This analysis is easier with LFG. LFG trees have a c-structure (constituent structure) and an f-structure (functional structure). In the c-structure the formation of a sentence with various phrases is shown, whereas in the f-structure the person, gender, and number agreement between nouns and adjectives, and the subject and verb agreement rules are shown together with the properties of the nouns, such as the SUBJ (subject) and the OBJ (object) and the verb of the sentence. The properties of the verb include its mood, aspect, tense, transitivity, et cetera.

The simplest rule for coordination, according to Sells (1994, p. 186), is shown in figure 1 below; here the annotations '↓∈↑' on the categories in the rule show that the f-structure of each category is an element of the f-structure of the mother (Sells, 1994, p. 187); besides, a set of f-structures is interpreted in the following way, suggested by Sells (1994:187): "*If*

some f-structure f is a set, then the value of an attribute a in f is v (that is,

(f a) = v) iff for every g ∈ f, (g a) includes the information in v."

Figure 1. C -> C   Conj   C

↓∈↑   ↓∈↑
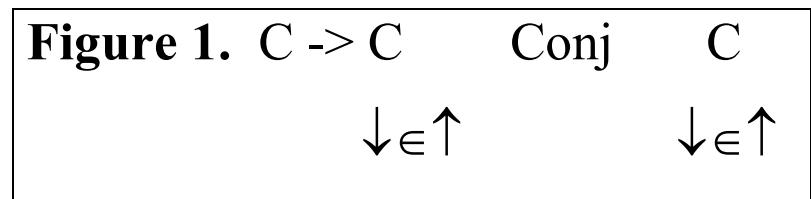
The correct forms of the Italian use of the following coordination structures are shown in the following LFG graphs: in (1) subject, in (2) passive subject, in (3) object coordination, in (4) '*o*' (or), in (5) '*né... né*' (neither…nor), in (6) '*non solo x, ma anche y*' (not only x, but also y) coordination, and in (7) sentence coordination:

(1) Giulia   e   Alessio   sono   venuti
     Judith   and   Alex participle came, plu
'Giulia and Alessio came'
 (1a)

c-structure

```
                    S
                   / \
                  /   \
               NP      VP
              /|\       |
             / | \      |
           NP Conj NP   V
           |   |   |    |
         Giulia e Alessio sono venuti
```

(1b)

f-structure

$$
\begin{bmatrix}
\text{PER} & 3 \\
\text{NUM} & \text{PLU} \\
\text{SUBJ} & \left\{
\begin{bmatrix}
\text{PRED 'Giulia'} \\
\text{PER 3} \\
\text{NUM SG} \\
\text{GENDER FEMALE/FEM} \\
\text{POSS [PRED PRO]}
\end{bmatrix}
\begin{bmatrix}
\text{PRED 'Alessio'} \\
\text{PER} \quad 3 \\
\text{NUM} \quad \text{SG} \\
\text{GENDER MALE/MASC}
\end{bmatrix}
\right\} \\
\text{Pred = 'venire<Subj>'} \\
\text{Tense = simple past}
\end{bmatrix}
$$

10
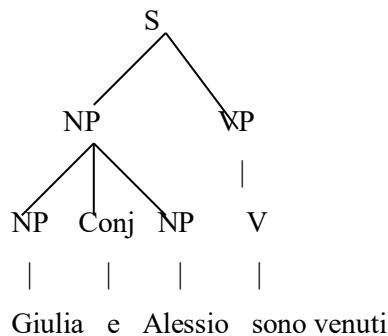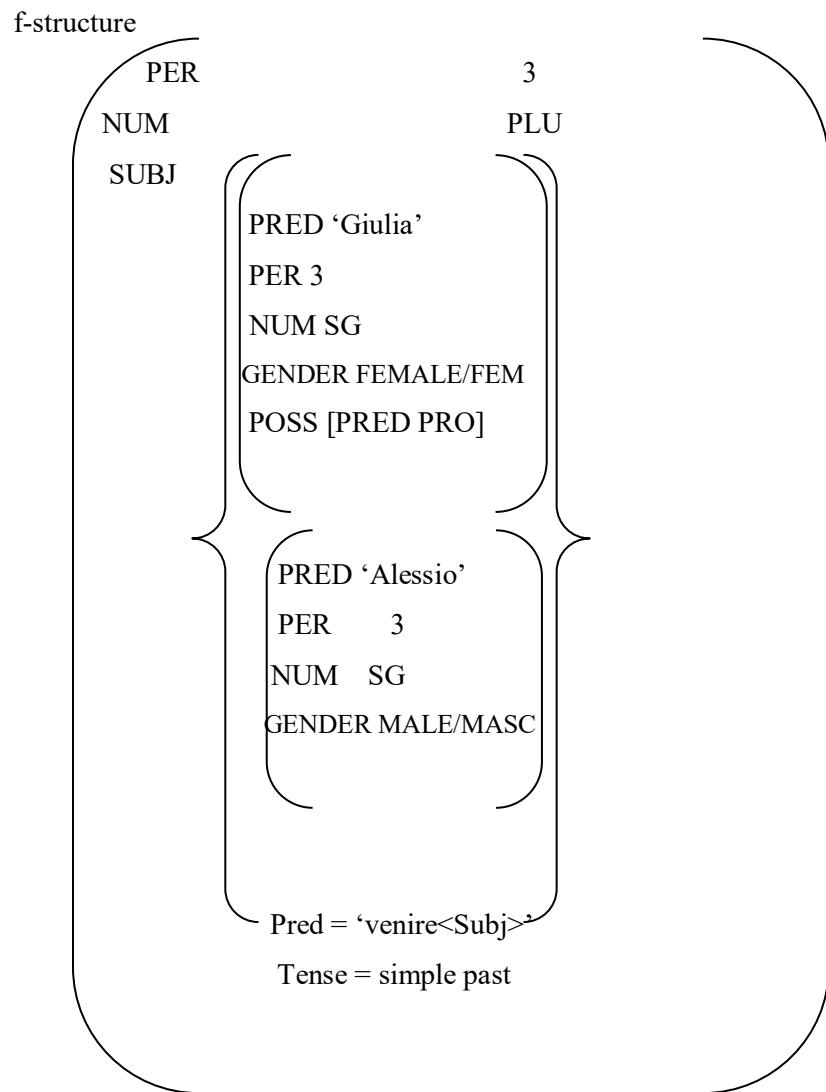
In (1a-b) the feature resolution is obtained, as the agreeing element introduces agreement features, different from some simple computation of each conjunct, and Dalrymphe and Kaplan suggest that a subset of features is crucial, since these features are non-distributive, as in number, gender, and person (Sadler, 1999, p. 6). It is the lexical rule that determines the direct relationships between the grammatical functions of the Pred (predicate) (Abeillé, 1993, p. 67).

(2) Luigi e   il   suo gatto sono stati visti   da Anna

   Luigi and the (article, masculine, singular)   his   cat   were seen, plu   by Anna
'Luigi and his cat were seen by Anna'

(2a)
c-structure

(2b)

f-structure

$$
\begin{bmatrix}
\text{SUBJ} = \begin{cases}
\begin{matrix}
\text{PER 3} \\
\text{NUM SG}
\end{matrix} \\[1em]
\begin{bmatrix}
\text{PRED 'gatto'} \\
\text{PER 3} \\
\text{NUM SG} \\
\text{POSS [PRED PRO]} \\
\text{GENDER MASC}
\end{bmatrix} \\[2em]
\begin{bmatrix}
\text{PRED 'Luigi'} \\
\text{PER} \quad 3 \\
\text{NUM} \quad \text{SG} \\
\text{GENDER MASC}
\end{bmatrix} \\[2em]
\text{Pred} = \text{'essere<Vcomp>Subj'} \\
\text{Tense} = \text{ simple past}
\end{cases} \\[4em]
\text{Vcomp} \quad \begin{bmatrix}
\text{Pred} = \text{'vedere<Par-Obj,Subj>'} \\
\text{Mode} = \text{ppart} \\
\text{Passive} = + \\
\text{Subj} = \\
\text{Par-Obj} = \begin{bmatrix}
\text{Pred 'Anna'} \\
\text{Gender Fem} \\
\text{Pcase Par-Obj} \\
\text{Num SG}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

12
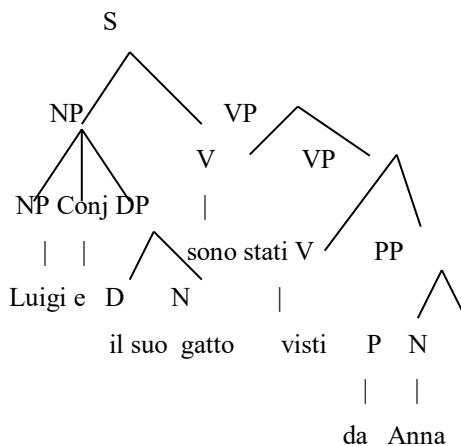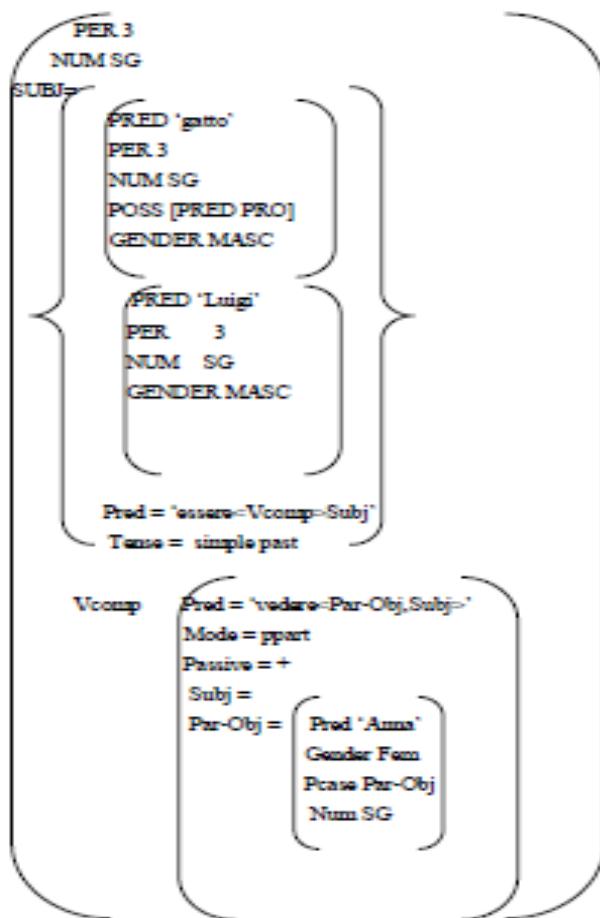
After we observe the coordination phenomenon in a passive sentence, in (3) below, we encounter the coordination of two objects with the same adjective.

(3) Io mangio   dei   biscotti   e   delle
torte   dolci.

   I   eat   some, masc., plu   biscuits   and some, fem., plu.
cakes   sweet, plu..

'I eat some sweet biscuits and some sweet cakes.'

(3a)

c-structure

```
                    S
             ┌──────┴──────┐
            NP             VP
             │        ┌─────┴─────┐
             N        V          AdjP
            Io        │       ┌────┴────┐
                    mangio   DP        Adj
                          ┌───┼───┐     │
                         DP  Conj  DP  dolci
                        ┌─┴─┐  e  ┌─┴─┐
                        D   N     D   N
                        │   │     │   │
                       dei biscotti delle torte
```

(3b)

f-structure

SUBJ=

PRED 'io'
GENDER MASC/FEM
PERS 1
NUM SG

Pred = 'mangiare <Subj, Obj>'
Tense = simple present

OBJ =

SPEC di
PRED 'biscotto'
PER 3
NUM PLU
GENDER MASC

SPEC di
PRED 'torta'
PER 3
NUM PLU
GENDER FEM

ADJ dolci
NUM PLU
GENDER FEM+MASC
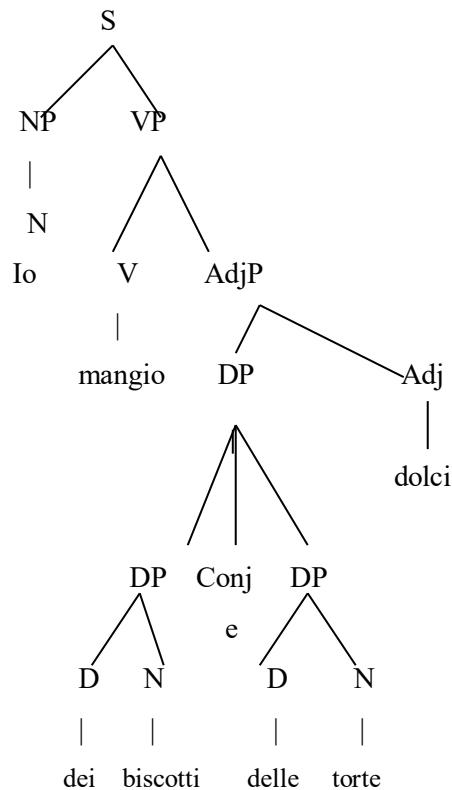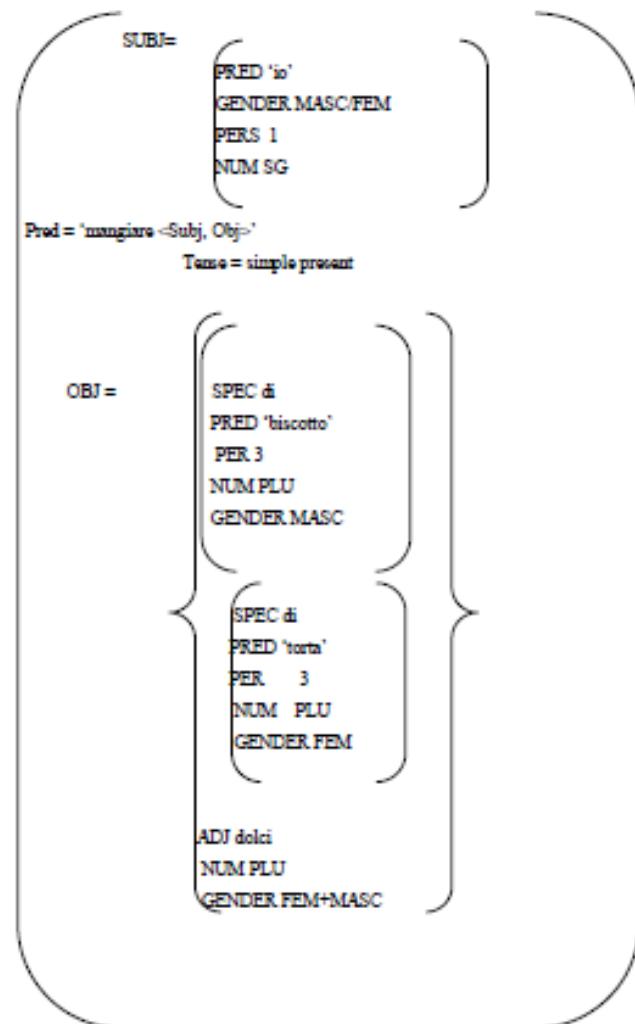
If a sentence is coordinated with *o*, the adjective must agree with a unique noun, as in (4) where we see two feminine nouns, agreeing with an adjective in its feminine form.

(4) Dammi   una penna   o   una   matita   rossa!
   Give me   a   pen   or   a   pencil   red, fem.!
  'Give me a red pen or a pencil!'

(4a)

c-structure

(4b)

f-structure

SUBJ =

$$
\left[\begin{array}{l} \text{PRED 'tu'} \\ \text{GENDER MASC/FEM} \\ \text{PERS 2} \\ \text{NUM SG} \end{array} \right]
$$

Pred = 'dare<Subj, Obj, A-Obj>'
Mood = imperative

$$
\left[\begin{array}{l} \text{A-OBJ 'mi'} \\ \text{PERSON 1} \\ \text{NUM SG} \\ \text{GENDER MASC/FEM} \end{array} \right]
$$

OBJ =

$$
\left\{ \begin{array}{l} \left[\begin{array}{l} \text{SPEC 'una'} \\ \text{PRED 'penna'} \\ \text{PER 3} \\ \text{NUM SG} \\ \text{GENDER FEM} \end{array} \right] \\ \\ \left[\begin{array}{l} \text{SPEC 'una'} \\ \text{PRED 'matita'} \\ \text{PER 3} \\ \text{NUM SG} \\ \text{GENDER FEM} \end{array} \right] \\ \text{ADJ rossa} \\ \text{NUM SG} \\ \text{GENDER FEM} \end{array} \right\}
$$
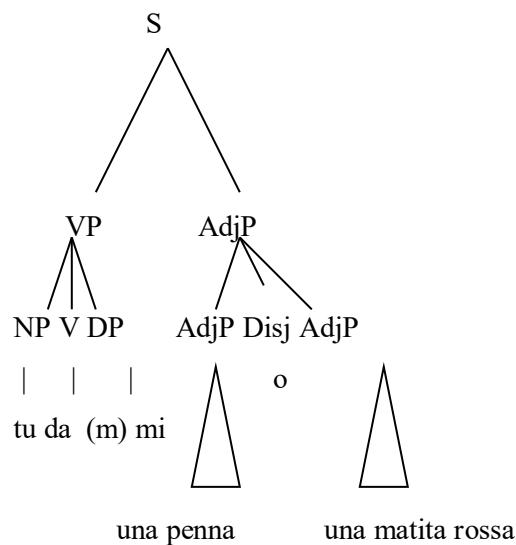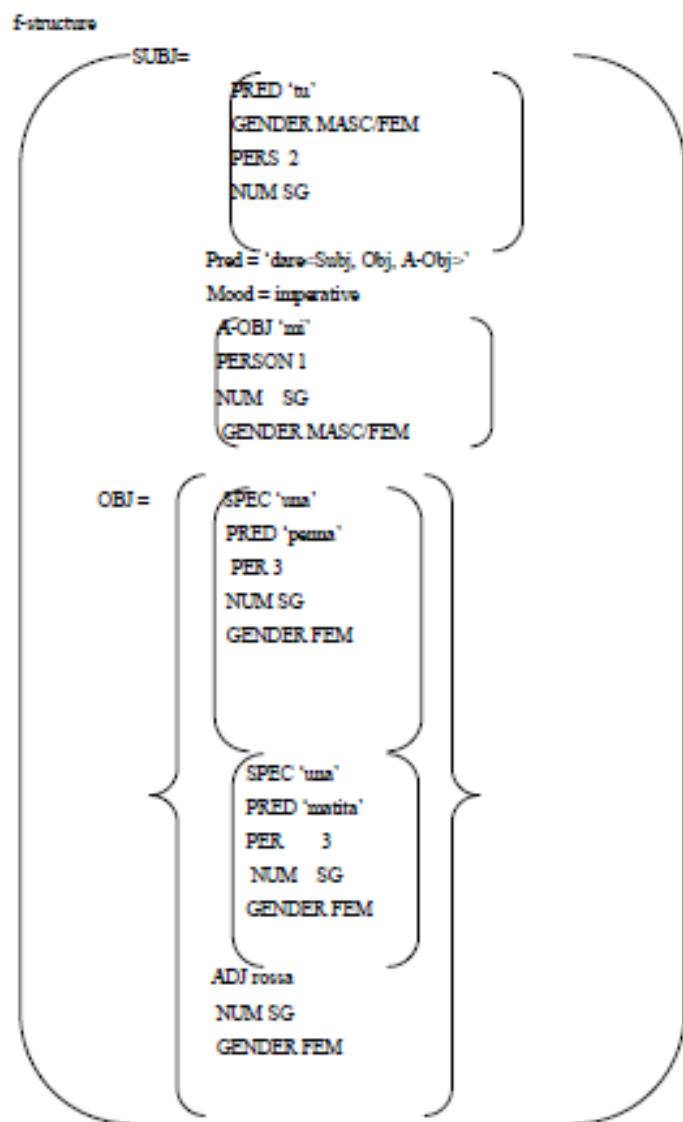
As the following phrase in (5) is a gerundive, I don't draw its c-structure, but I just demonstrate its f-structure, as it is the most difficult part that creates a problem of translation, we call it a totalizing coordination as in French (Riegel, Pellat, & Rioul, 1994, p.164). By the way, grammatical relations are represented by f-structures, consisting of pairs of fnames and fvalues; the fname is a symbol, denoting one of the universal set of features and functions, and the fvalue is a symbol, denoting one of the universal set of feature values; PRED is a fname, for example (Bresnan, 1982, p. 304).

In addition, we can see that "*the level of f-structure differs crucially from representations of constituent structure in that it represents grammatical relations universally, locally with respect to lexical subcategorization, and compositionally with respect to semantic interpretation*" (cited in Bresnan, 1982, p. 305).

(5) Non sentendo né   una voce   né una canzone
     Not   hearing neither   a   voice, nor   a   song.
    'Not hearing neither your voice nor the song'

(5a)

f-structure

$$
\left[
\begin{array}{l}
\text{SUBJ=}
\left[
\begin{array}{l}
\text{PRED 'PRO'} \\
\text{GENDER MASC/FEM} \\
\text{PERS } 1/2/3 \\
\text{NUM SG/PLU} \\
\text{GENDER FEM/MASC}
\end{array}
\right] \\
\quad\quad \text{Pred = 'sentire <Subj, Obj>'} \\
\quad\quad \text{Mood = ind, neg} \\[2em]
\text{OBJ =}
\left\{
\begin{array}{l}
\left[
\begin{array}{l}
\text{SPEC una} \\
\text{PRED 'voce'} \\
\text{PER 3} \\
\text{NUM SG} \\
\text{GENDER FEM} \\
\text{ARTICLE IND.}
\end{array}
\right] \\[1em]
\left[
\begin{array}{l}
\text{SPEC una} \\
\text{PRED 'canzone'} \\
\text{PER \quad 3} \\
\text{NUM \quad SG} \\
\text{GENDER FEM}
\end{array}
\right]
\end{array}
\right\}
\end{array}
\right]
$$
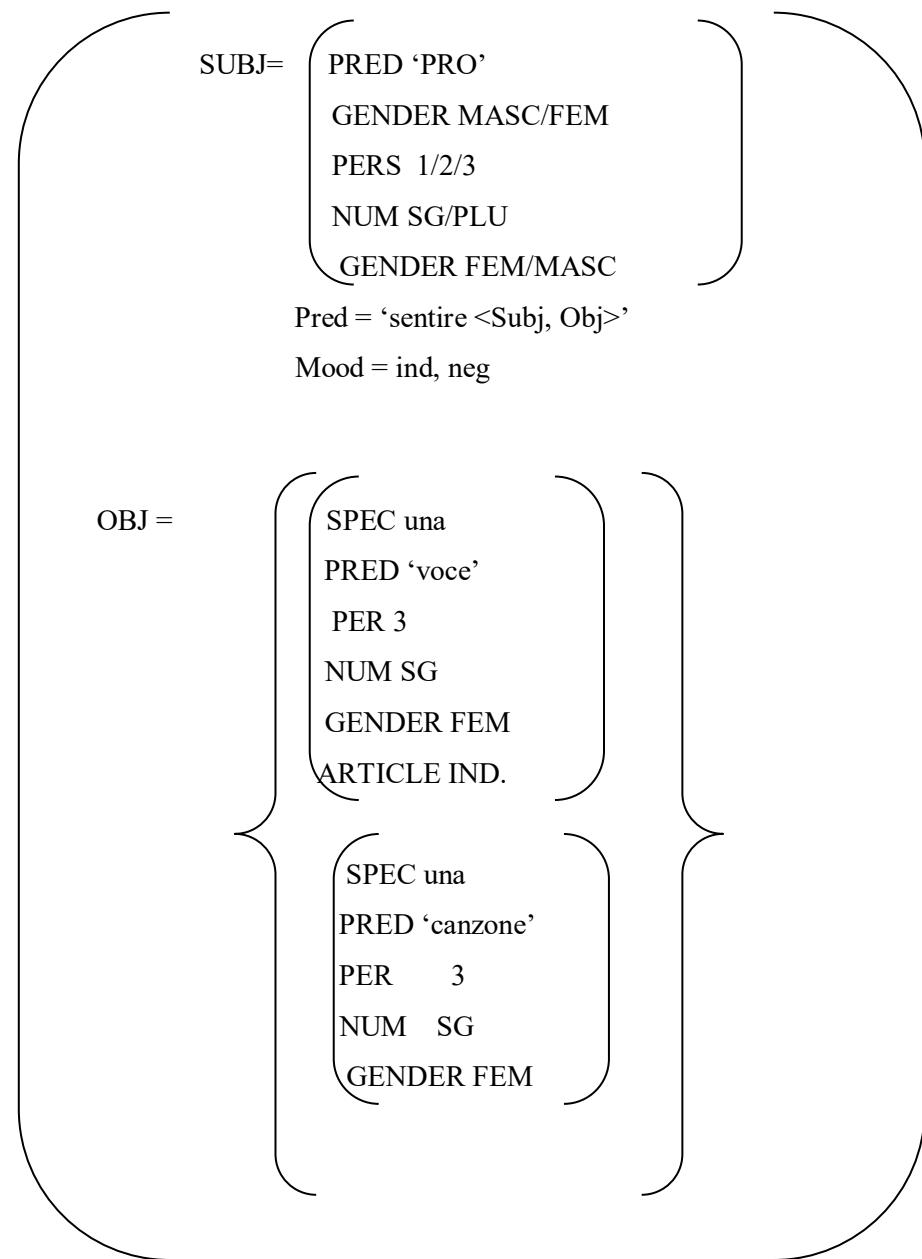
Also in (6) what is hard, is to construct the agreement in VP-ellipsis, therefore, I draw its f-structure:

(6) Io ho letto non solo   il livro,   ma anche l'articolo.
    I have read not only the book, but   also the article.
    'Not only did I read the book, but also the article.'

(6a)

f-structure

SUBJ=

PRED 'io'
PER 1
NUM SG
GENDER MASC/FEM

Pred = 'leggere<Subj, Obj>'
Tense = simple past

OBJ =

SPEC 'il'
PRED 'libro'
NUM   SG
GENDER MASC

SPEC 'il'
PRED 'articolo'
NUM   SG
GENDER MASC
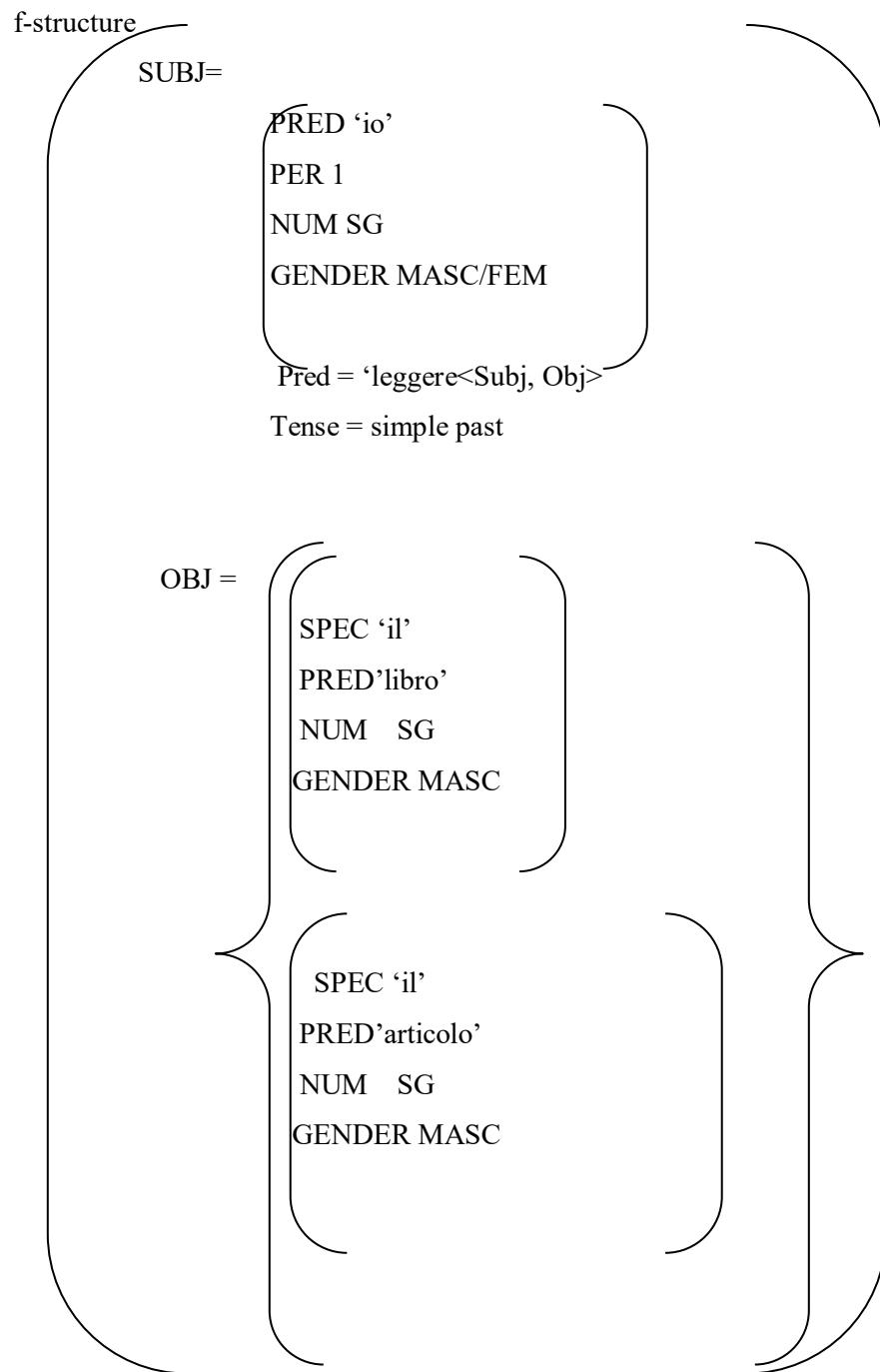
2.2. Coordination of sentences

Concerning the coordination of sentences, we can observe the following sentence in (7) where *e* is used for the empty category led by the unnecessity of repeating the same objects 'the journals', thus 'i giornali'.

(7) Maria compra   e   legge i   giornali.
    Maria buys   and   reads the journals.
    'Mary buys and reads the journals.'

(7a)

c-structure

```
                S
              /   \
           DP      VP
            |       /|\
          Maria    / | \
                  /  |  \
               VP  Conj  VP
              / \    |   / \
             V  DP   e  V   DP
             |   /\     |    /\
          compra  e  legge  i giornali
```

(7b)

f-structure

$$
\left\{
\begin{array}{l}
\text{SUBJ} = \left[
\begin{array}{l}
\text{PRED 'Maria'} \\
\text{PER 3} \\
\text{NUM SG} \\
\text{GENDER FEM}
\end{array}
\right] \\[4ex]
\text{PRED 'comprare <(\(\uparrow\)SUBJ)(\(\uparrow\)OBJ)>'} \\
\text{TENSE simple present} \\[2ex]
\text{OBJ} \left[
\begin{array}{l}
\text{SPEC i} \\
\text{PRED 'giornali'} \\
\text{NUM PLU} \\
\text{GENDER MASC} \\
\text{CASE ACC}
\end{array}
\right] \\[6ex]
\text{ø SUBJ} = \left[
\begin{array}{l}
\text{PRED 'Maria'} \\
\text{PER 3} \\
\text{NUM SG} \\
\text{GENDER FEM}
\end{array}
\right] \\[4ex]
\text{PRED 'leggere <(\(\uparrow\)SUBJ)(\(\uparrow\)OBJ)>'} \\
\text{TENSE simple present} \\
\text{OBJ} \left[
\begin{array}{l}
\text{SPEC 'i'} \\
\text{PRED 'giornali'} \\
\text{NUM SG} \\
\text{GENDER MASC} \\
\text{CASE ACC}
\end{array}
\right]
\end{array}
\right\}
$$

3. DISCUSSION ABOUT THE ERRORS OF THE STUDENTS

I calculated the results of a grammaticality judgment test of thirty sentences, given in appendix 1. Ten elementary level and ten intermediate level students completed my grammaticality judgment test. I hypothesized that Turkish students at the elementary and the intermediate level would make more errors in sentences where subject and verb agreement should have been provided than the sentences where adjective and noun agreement should have been provided.

Table 1. Agreement error rates of the Turkish students learning Italian at two different levels: the expected values

	Adjective / Noun	Subject / Verb	Total
Elementary level	85.366	164.634	250
Intermediate level	54.634	105.366	160
Total	140	270	410

Degrees of freedom: 1
Chi-Square = 9.76190476190476
p – value = 0.0017.
The distribution is significant.

As the results of the Chi–Square test shows, my hypothesis is valid with the statistical significance of a Chi-Square equal to 9.76190476190476 and a p-value less than 0.01, thus equal to 0.0017.

The reason for that significance can be found in the grammar of Turkish. As in Turkish the verb and subject agreement in coordinated constructions is not necessary, students at both levels ended up with many errors. Concerning the coordination of objects, they could not cope with the adjective agreement in the given sentences; about '*o*' (or), the errors concern the erroneous uses of number and gender agreements of the verbs with subjects. The students could not deal with subject and verb agreement with '*non solo x, ma anche y*' (not only x, but also y) construction half of the time. The largest number of errors of the students occurs with the '*né...né*' (neither…nor) construction. Students failed to recognize the subject and object agreement with the correct uses of adjectives, and the students failed at coordination clauses, as in Turkish there is no gender, person, and number agreement within words, word groups, and phrases. But we have to remember that for Turkish students, it is more difficult to cope with subject and verb agreement than the adjective and noun agreement, as there may appear many other grammatical elements between the subject and the verb of a sentence, and Italian is a SVO (subject-verb-object) language, but Turkish is a non-configurational one.

4. CONCLUSION

LFG is a good example, showing the brain processes involved in the grammatical constructions of the sentences; it shows which rules we have to use to form grammatical sentences, and due to it, we can conceive where the students learning a foreign language make mistakes.

These errors aren't linked to their level of intelligence, but to the effects of the grammar rules of their native language, like those of the Turkish students, who completed the test. Thus, I suggest that foreign language learners should be allowed to make the contrastive analysis from their source language (native language) to their target language (foreign language). By comparing the coordinated structures in both languages, they may perceive their errors, and correct them after this type of a reinforcement method, combating against their innate linguistic knowledge that they acquired by setting parameters in their brain. A brain-based method based on contrastive analysis of the source and the target languages helps language learners to reduce their grammatical errors. If the teachers give students two texts -one in the source language, and another in the target language with the same grammatical structures-, the students will have the chance to compare the two different grammatical structures of two different languages. As well, reading the text, they will imagine a situation lived in a specific cultural context. Therefore, they will be able to distinguish between the two cultures and their languages, reading and comparing texts belonging to different

cultures where the same grammatical structures are used. Such a teaching method will activate the nerves linked to linguistic processing in the brain.

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6. APPENDIX 1: GRAMMATICALITY JUDGMENT TEST

Fill in the blanks with the grammatical forms of the missing words given in parentheses.

1. Luigi e il suo gatto …………………. (vedere) da Anna (PAST TENSE).

2. Dammi una penna o una matita ……………………………….(rosso)!

3. Io ………………... (leggere, SIMPLE PAST TENSE) non solo il livro, ma anche l'articolo.

4. Io mangio dei biscotti e delle torte…………………………….. (dolce).

5. Non sentendo né ……… (indeterminative article) voce né ……………………….. (indeterminative article) canzone.

6. Maria compra e ………………… (leggere) giornali.

7. Giulia e Alessio sono ……………………. (venire).

8. Io, Dafne, Marco e Teresa ……………………. (andare) al mare ieri.

9. Non solo Donatella, ma anche Rosa ………………… (essere / bello).

10. Antonio e Santa …………………(scrivere) un libro.

11. Carmela o Tonio …………………(mangiare) la pizza ieri sera.

12. Ho comprato una macchina e un armadio …………….. (grande e bianco).

13. Abbiamo mangiato una pizza e un tramezzino ……………….. (ottimo).

14. Dora compra il vestito ………… (giallo) o la maglia …………….. (giallo).

15. Non si ………….. (vendere) né giornali né quaderni.

16. Leggiamo o le riviste…………… o i libri …………………… (grande).

17. Non mangio né l'insalata né gli spaghetti …………………….. (preparato).

18. Scegli la matita o la penna ……………….. (nero)!

19. Scriverò una lettera e una posta elettronica …………………… (lungo).

20. Marisa e Carlo …………………………………(invitare) da Paolo alla festa di Natale ieri.

21. Abbiamo visto un cane e un gatto …………………….. (marrone).

22. Luisa ha capelli ………………. (nero) e occhi ………………….. (verde).

23. Né Davina né Alina …………………… (venire) alla conferanza tenuta ieri.

24. Non preferisce né uccelli né gattine ………………………….. (grigio).

25. Non si …………………………………….. (mai vedere) né rane né foglie ………………… (nero).

26. Non mi piacciono vestiti…………………….. o gonne………………………….(azzurro e viola).

27. Giovanni e Giovanna sono due …………………………… …………………….. (amico / buono).

28. Piero e Valeria ……………………. (andare) ad un ristorante e ………………….. (mangiare) cibi ………………………… (squisito).

29. Rita legge articoli e libri ……………………………………… (dettagliato).

30. Le cravatte, le giacche ed i pantaloni …………………………… (rosso) ……………………………. (preferire) da molti quest'anno.